Properties of Matter

5-4 The student will demonstrate an understanding of properties of matter. (Physical Science)

5-4.8 Explain how the mixing and dissolving of foreign substances is related to the pollution of the water, air, and soil.
Taxonomy level: 2.7-B Understand Conceptual Knowledge

Previous/Future knowledge: In 3rd grade (3-3.1), students were introduced to the concept of sediment when they classified rocks and soils. They were also introduced to Earth's water features (3-3.5). In 4th grade (4-2.6), students explained how organisms cause changes in their environments (for example, humans polluting the air and dumping toxins into waterways). In 7th grade (7-4.6), students will explain the importance of conservation of resources (including water, air, and soil).

It is essential for students to know that foreign substances can mix with and dissolve in water, air, and soil resulting in pollution.

- These foreign substances are often produced as a result of activities associated with industry, agriculture, burning fossil fuels, or other processes associated with human activities.
- The greater the amount of the foreign substance, the more concentrated or harmful the pollution can be.

It is not essential for students to know exactly what kinds of foreign substances are responsible for pollution of water, air, and soil. Students do not need to know about point and nonpoint sources of pollution.

Assessment Guidelines:
The objective of this indicator is to *explain* how the mixing and dissolving of foreign substances is related to the pollution of water, air, and soil; therefore, the primary focus of assessment should be to construct a cause-and-effect model of how foreign substances cause pollution of water, air, or soil pollution when mixed or dissolved in them. However, appropriate assessments should also require students to *recognize* pollution of water, air, and soil as being formed from foreign substances mixed or dissolved in them; or *summarize* the relationship between water, air, and soil pollutions and the mixing and dissolving of foreign substances.